

## VIII. HAZARDS AND HAZARDOUS MATERIALS

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>VIII. HAZARDS AND HAZARDOUS MATERIALS—Would the project:</b>				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## SUMMARY

*The proposed project could pose potentially significant hazard impacts. These include the potential for exposure to gas leaking from abandoned wells by new residents located on the divested properties and/or potential effects from accidental releases of hazardous substance when construction activities occur on the properties. Existing reports that describe monitoring programs for hazardous substances at the project sites do not provide sufficient information to determine if hazards presently exist. The measurement data are also not sufficient to determine if*

*sale of the lots would result in significant impacts, and if the hazards impacts from potential development on the project sites may be significant.*

*A comprehensive measurement program must be undertaken to better characterize the extent of contamination at or near the identified lots. That analysis and the assessment of human health impacts will be reported in an EIR.*

## **HAZARDOUS MATERIALS/WASTES**

As part of the existing environment, hazardous materials and wastes may be encountered at each of the abandoned and operating gas wells within the surrounding residential community. Hydrogen sulfide (H<sub>2</sub>S) and other odorous substances, such as methyl mercaptan, benzene, as well as other aromatic hydrocarbons, are all byproducts of natural gas production. These toxins may be present at active or abandoned wells. The impacts that these substances have on properties to be divested are discussed in the impact analysis below. SCG follows standard operating procedures that are prescribed to regulate the storage, clean up, and disposal of hazardous materials and wastes at their sites. These procedures are contained in both the Hazardous Materials Business Plan and the Hazardous Waste Contingency Plan.

## **GAS MIGRATION**

SCG has operated the PDRGSF since 1942, and the twelve wells associated with the proposed sale of the 36 lots have been abandoned according to abandonment regulations. Giroux and Associates conducted a limited gas migration study in July 2001, at two abandoned wells that were assumed to be representative of the two areas where wells are located, the LorMar site (Cluster 3) and the Troxel site (Cluster 12), where gas leakage was monitored around an abandoned well on each site. The LorMar well is on top of PDR Mesa, and the Troxel well is located in beach sand at MDR. Probes were inserted into the soil around each well to measure methane gas. However, there was no methane detected at the LorMar well, indicating that there is no leaking gas.

At the Troxel site, there were initially levels of methane measured at four of the probes that were located 5 feet and 10 feet from the well head. However, the levels decreased to below detection limits after about four days of monitoring. If there were underground gas migration, there would initially be a gradual rise in methane levels until steady-state conditions would be reached, and the level would then remain relatively constant. During steady-state, the loss through the soil and to the air would be replenished with new gas from a leaking well. Because the monitoring showed a sharp decline in methane levels with time, there is probably no leaking gas, but the initial measured level might have been the result of drilling into old spilled oil that dissipated with time. If the well were leaking, there would be replenishment of the gas with time.

Since there was no steady-state level of gas measured at either site, there was no indication of any gas migration at either monitoring site. Since the two tests may not sufficiently characterize all of the abandoned wells, further testing is being performed for consideration in the EIR, prior to sale of the lots.

## IMPACTS ANALYSIS

### ***SALE AND DEVELOPMENT OF THE PLAYA DEL REY AND MARINA DEL REY LOTS***

Please see Appendix F for an extensive background analysis of hazardous materials.

Sale of the lots assumes that the properties are sold in their existing conditions and that potential hazards impacts would be the result of gas leaks and migration to new residents from the existing wells.

**a) Would the project create a significant hazard to the routine transport, use, or disposal of hazardous materials?**

The proposed project and expected future development will not involve the routine transport, use or disposal of hazardous materials and thus there is no project-related impact.

**b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?**

The types of hazards that can occur from upset or accident conditions relates to potential explosions or exposure to high levels of toxic air contaminants (TACs) in the gas. These compounds include aromatic hydrocarbons, such as benzene, that are present in the gas.

#### ***Risk of Explosion***

The generation, transmission, and distribution of natural gas may pose a risk of explosion. Natural gas has a flammable property that needs to be strictly regulated in order to reduce the risk of explosion to the public and the environment. Explosion can occur as a result of leakage from existing and abandoned gas wells and gas lines, and/or from third party interaction with the wells, transmission lines, and distribution lines. Distribution lines extend out from the main facility to the surrounding community. These lines are located underneath the community roads and sidewalks. If new residences are built on the divested properties there may be gas leakage from abandoned wells into the buildings and leading to possible explosions. This would be a potentially significant impact. Further study on methane gas migration is being undertaken, and the results reported in an EIR to assess the significance of impacts and possible mitigation measures.

Details of a field sampling plan are described in the referenced report (Methane Specialists and Sullivan Consulting Group, 2003). This sampling program will determine potential migration of gas near abandoned wells at the divested properties and the potential for explosion conditions. The significance of the impacts will be reported in an EIR.

In addition, releases of gas from the abandoned wells may occur if construction activities on the sale lots accidentally puncture an abandoned well, leading to a possible explosion.

Further analysis should be done on the abandoned wells, and safety precautions should be established to ensure that accidents do not occur during construction activities.

### ***Risk of Toxic Air Contaminates***

There is a possible risk of contracting cancer or noncancer health effects by residents at the sale lots from exposure to Toxic Air Contaminants (TACs) released from abandoned wells and lines. These compounds include aromatic hydrocarbons, such as benzene, that are present in the gas. Limited monitoring for gas leaks at the facility, including at abandoned wells, under normal operations has shown no significant hazard to the public or the environment. The following is a brief discussion of these TACs:

**Natural Gas** is normally odorless. There is a potential for natural gas to leak from the gas storage facility through various conduits, such as leaking gas wells and transmission lines. In the past, SCG injected an odorant into the gas storage zone in order to detect any leaks. Currently, there is enough detectable odorant within the storage zone that SCG injects the odorant directly into the distribution lines. The odorant that SCG uses is composed of either 100% Thiophane (Tetrahydro-thiophene) or a 50/50 blend of Thiophane and Tertiary-butyl-Mercaptan. The odorant injected is also less than 1 part per million (ppm) of each compound within the storage zone gas.

**Thiophane** is a flammable yellow liquid that supplies a noxious odor. There have been several studies done on this compound. As a result of the studies performed, the following information has been identified.

Thiophane is not listed by the American Conference of Governmental Industrial Hygienists (ACGIH), International Agency for Research on Cancer (IARC), National Institute for Occupational Safety and Health (NIOSH), or Occupational Safety and Health Administration (OSHA) as a carcinogen. The compound does have an LC50 by inhalation within a mouse of 27 gm/m<sup>3</sup>/2H. An LC50 value is the concentration of a material in air that will kill 50% of the test subjects when administered as a single exposure. The value gives information regarding an idea of the relative toxicity of the material. Comparing the LC50 of the Thiophane to the amount injected in the odorant shows that the injected amount is too small to create a significant health effect to the public or the environment. Thiophane does not contain any hazardous air pollutants or ozone depleters under the Clean Air Act. Thiophane is not listed as a hazardous substance, a priority pollutant, or a toxic pollutant under the Clean Water Act. OSHA considers none of the chemicals in this substance highly hazardous. Thiophane can be found on the State of California No Significant Risk Level right to know list.

**Tert-Butyl Mercaptan** is a flammable, clear, colorless liquid, which supplies a skunk-like stench. There have been several studies done on this compound. As a result of the studies performed, the following information has been identified.

T-butyl Mercaptan is not listed by ACGIH, IARC, NIOSH, OSHA, or the National Toxicology Program (NTP) as a carcinogen. The compound does have an LC50 by inhalation within a mouse of 16500 ppm/4H<sup>6</sup> and within a rat of 22200 ppm/4H. The LC 50 numbers when compared to the 1 ppm injected into the storage gas show that the injected amount is too small to create a significant health effect to the public or the environment. The compound is not designated a hazardous air pollutant or ozone depletor under the Clean Air Act. T-butyl Mercaptan can be found on the State of California No Significant Risk Level right to know list.

**Hydrogen sulfide** (H<sub>2</sub>S) is produced in nature primarily through the decomposition of organic material by anaerobic bacteria. H<sub>2</sub>S develops within stagnant anaerobic areas such as swamps, and naturally as a constituent of natural gas or petroleum. H<sub>2</sub>S is a colorless, flammable and toxic gas that has a noxious odor. At first contact the odor smells like rotten eggs, however the sense of smell is lost after 2-15 minutes of exposure making it difficult to detect dangerous concentrations. The OSHA ceiling for H<sub>2</sub>S is 20 ppm and the ACGIH Short-Term Exposure Level is 15 ppm. The compound has an oral LD50 within a rat of 175 mg/kg. The LD50 test evaluates acute lethality from exposure to a substance or product. Similar to the LC50, the LD50 is the dose at which 50 percent of the test animals can be expected to die. Hydrogen Sulfide is not listed by OSHA, IARC, NTP, or ACGIH as a carcinogen.

Hydrogen sulfide can be released to the environment through two different conduits within the operating facility. H<sub>2</sub>S can vent from the oil water separator during extraction of gas from the storage facility. It can also be released from the monitoring and liquid extraction wells. Any exposure level of H<sub>2</sub>S released into the environment that exceeds safety standards set by OSHA or ACGIH would be a significant impact. Giroux & Associates has conducted air sampling to determine the presence (if any) of H<sub>2</sub>S in the project area as a result of the facility operations. A detailed examination of the findings and impacts is discussed in Section III, *Air Quality*. Since these data are inconclusive, an additional monitoring program will be carried out to determine potential exposure levels of hydrogen sulfide (Methane Specialists and Sullivan Consulting, 2003). The program is geared to measure both methane and hydrogen sulfide leakage from the abandoned wells and from other locations impacted on the sale lots.

A common by-product of gas and oil production is **Benzene and other volatile organic compounds**. Benzene is one of the most toxic of the aromatic hydrocarbons and therefore will be the focus of this impact analysis. Benzene is a common chemical that the public is exposed to each day. It is located within gasoline and vented into the atmosphere in small quantities at the local gas station. It is contained within cigarettes and exposes the average smoker to an increased amount, as opposed to the average nonsmoker. It is also released from cars while they are warming up or sitting idle.

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<sup>6</sup> The value shown represents the combination of dose and duration. In this case it is 16500 parts per million over 4 hours (i.e., 4H).

Benzene is an A1-confirmed carcinogen in humans according to ACGIH, an occupational carcinogen according to NIOSH, a known carcinogen according to NTP, a select carcinogen according to OSHA, a group 1 carcinogen according to IARC, and a carcinogen according to the state of California. The inhaled LC50 is 9,980 ppm in mice and 10,000 ppm/7H in rats. Benzene is listed as a hazardous air pollutant under the Clean Air Act. Benzene is listed as a hazardous substance, a priority pollutant, and a toxic pollutant under the Clean Water Act.

The OSHA Permissible Exposure Limit (PEL) for benzene is 1 ppm and the ACGIH Short-Term Exposure Level for benzene is 5 ppm. Because benzene can still be harmful at this level, ACGIH has recommended a threshold limit of 0.5 ppm and NIOSH has set a recommended exposure limit at 0.1 ppm.

Benzene could be released as a result of leaking abandoned well.

### ***Discussion of Risks***

As no Health Risk Assessment (HRA) was available specific to the proposed project, an examination was made of an HRA prepared for the nearby Playa Vista Project, which is located near the PDR sites (Kleinfelder, 2001). The Kleinfelder HRA relied on over 1,000 soil gas samples that were analyzed for methane and the toxic vapors: benzene, ethyl benzene, and xylenes (BTEX) and for hydrogen sulfide. The HRA reported that maximum methane concentrations were very high and were well above explosive limits. However, the HRA did not evaluate the potential for explosions. It did evaluate the health risks from potential exposure to TACs, BTEX and hydrogen sulfide.

The Kleinfelder HRA estimated maximum impacts by incorporating the measured soil gas concentrations of TACs into a model that simulates the transport of toxic gases to indoor spaces located near the source of contamination (Johnson Ettinger model). The model showed that the maximum cancer risk from exposure to soil gas was estimated to be  $7 \times 10^{-9}$  for average soil gas concentrations and  $1 \times 10^{-7}$  for maximum soil gas concentrations. These cancer risks are well below the  $1 \times 10^{-6}$  cancer risk considered to be acceptable by regulatory agencies and which do not require remediation. This HRA implies that the health risks to future residences on all of the sold properties would be less than significant. However, the HRA was based on a limited set of measurements, and there may not be sufficient measurement data to adequately characterize the spatial and temporal distribution of toxic gases at the property sites. In addition, further investigation is being conducted to determine if methane levels could reach explosive levels at some of the divested properties, as was indicated in the HRA. When new field data has been collected and analyzed, an HRA will be prepared for the proposed project and considered in the EIR.

To better quantify ambient air levels of TACs throughout the parcel locations, a meteorological monitoring and continuous ambient air monitoring program for methane and total hydrocarbons was conducted for one year (September 2000 to September 2001) at two locations (URS, 2002). The mean concentration of the monitoring results for methane

was very low (about 3 ppm), indicating that ambient levels are at about background levels for the Los Angeles region. The peak short-term level was 14 ppm, which is below health levels, and well below safety levels. However, because the measurements only covered two locations and may not have been located where maximum impacts from potential leaks might be occurring there is not sufficient information to eliminate a possible significant hazard to the public or the environment.

There is insufficient data in these studies (Kleinfelder HRA and URS air monitoring data) to conclude that there would be no significant health risks to residents located on the properties after sale of these properties, and additional monitoring and analysis is being conducted to determine if there may be significant impacts. The additional monitoring is designed to further characterize shallow subsurface soil vapor and soil quality below the 36 lots, all of which are located at or near the 12 abandoned oil and gas wells. Details of a monitoring program are described in a report by Brown and Caldwell (Brown and Caldwell, 2003). The data obtained from the monitoring program will then be incorporated in a follow-up exposure HRA and the significance of the impacts and potential mitigation measures will be reported in the EIR. Until this analysis is complete, this impact is considered potentially significant.

**c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?**

Any natural gas leaking from the abandoned wells could release TACs to the environment as described in impact b) above. These releases could be the result of possible accidents that might occur during construction on the properties or potential well leaks over time. The releases could migrate along air currents to nearby schools. All of the PDR lots are located less than 0.25 miles away from at least one of the three local schools:

- Westchester High School
- Paseo del Rey Elementary School
- St. Bernard High School

Note that Cluster 12 located in the MDR area is not located within 0.25 miles of any school. Additional analysis is needed to determine the potential for exposure of TACs at nearby schools, and how the project would cause those releases. The methods for the analysis are described above under impacts a) and b). This is a potentially significant impact and will be considered further the EIR.

**d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?**

Neither the PDR nor MDR sale lots are not contained on the list of hazardous materials sites (Cortese) that are subject to Government Code Section 659062.5, and, as a result,

would not create a significant hazard to the public or environment. Thus, there is no impact from the proposed project on this criteria and it will not be considered further in the EIR.

- e) **For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?**

The MDR lots are not located within two miles of a public airport and would not pose a safety hazard. Several of the PDR lots are within 0.75 miles of the northern most runway of Los Angeles International Airport. However, the nature of the project and the expected future development of the PDR sale lots would not pose a safety hazard. This impact will not be considered further in the EIR.

- f) **For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?**

The lots are not within two miles of an existing public or private airstrip and therefore will not create an impact that would require mitigation. This impact will not be considered further in the EIR.

- g) **Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

The sale and future development of the lots may eliminate these locations from the SCG Emergency Response Plan that covers their remaining facilities. In that case, a new emergency response plan that addresses these locations would have to be developed. Additional analyses are needed in an EIR to determine if the project will interfere with adopted emergency response plans or as a mitigation measure, a new emergency response plan would be required to be prepared.

- h) **Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?**

The project is not located in an area subject to wildfires. The impact would not be significant, will not require mitigation and will not be considered further in the EIR.